Bosch 20-inch High-resolution LCD Monitor

UML-202-90

BOSCH

en Instruction Manual

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1 Safety

1.1 Important Safety Instructions

Read, follow, and retain for future reference all of the following safety instructions. Heed all warnings on the unit and in the operating instructions before operating the unit.

1. **Cleaning -** Unplug the unit from the outlet before cleaning. Follow any instructions provided with the unit. Generally, using a dry cloth for cleaning is sufficient, but a moist fluff-free cloth or leather shammy may also be used. Do not use liquid cleaners or aerosol cleaners.
2. **Heat Sources -** Do not install the unit near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.
3. **Ventilation -** Any openings in the unit enclosure are provided for ventilation to prevent overheating and ensure reliable operation. Do not block or cover these openings. Do not place the unit in an enclosure unless proper ventilation is provided, or the manufacturer's instructions have been adhered to.
4. **Water -** Do not use this unit near water, for example near a bathtub, washbowl, sink, laundry basket, in a damp or wet basement, near a swimming pool, in an outdoor installation, or in any area classified as a wet location. To reduce the risk of fire or electrical shock, do not expose this unit to rain or moisture.
5. **Object and liquid entry -** Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the unit. Do not place objects filled with liquids, such as vases or cups, on the unit.
6. **Lightning -** For added protection during a lightning storm, or when leaving this unit unattended and unused for long periods, unplug the unit from the wall outlet and disconnect the cable system. This will prevent damage to the unit from lightning and power line surges.
7. **Controls adjustment -** Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may cause damage to the unit. Use of controls or adjustments, or performance of procedures other than those specified, may result in hazardous radiation exposure.
8. **Overloading -** Do not overload outlets and extension cords. This can cause fire or electrical shock.
9. **Power cord and plug protection -** Protect the plug and power cord from foot traffic, being pinched by items placed upon or against them at electrical outlets, and its exit from the unit. For units intended to operate with 230 VAC, 50 Hz, the input and output power cord must comply with the latest versions of *IEC Publication 227* or *IEC Publication 245*.
10. **Power disconnect -** Units with or without ON/OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON/OFF switch is in the ON position. The power cord is the main power disconnect device for switching off the voltage for all units.
11. **Power sources -** Operate the unit only from the type of power source indicated on the label. Before proceeding, be sure to disconnect the power from the cable to be installed into the unit.
    - For battery powered units, refer to the operating instructions.
    - For external power supplied units, use only the recommended or approved power supplies.

- For limited power source units, this power source must comply with *EN60950*. Substitutions may damage the unit or cause fire or shock.
- For 24 VAC units, voltage applied to the unit's power input should not exceed ±10%, or 28 VAC. User-supplied wiring must comply with local electrical codes (Class 2 power levels). Do not ground the supply at the terminals or at the unit's power supply terminals.
- If unsure of the type of power supply to use, contact your dealer or local power company.

12. **Servicing -** Do not attempt to service this unit yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
13. **Damage requiring service -** Unplug the unit from the main AC power source and refer servicing to qualified service personnel when any damage to the equipment has occurred, such as:
    - the power supply cord or plug is damaged;
    - exposure to moisture, water, and/or inclement weather (rain, snow, etc.);
    - liquid has been spilled in or on the equipment;
    - an object has fallen into the unit;
    - unit has been dropped or the unit cabinet is damaged;
    - unit exhibits a distinct change in performance;
    - unit does not operate normally when the user correctly follows the operating instructions.
14. **Replacement parts -** Be sure the service technician uses replacement parts specified by the manufacturer, or that have the same characteristics as the original parts. Unauthorized substitutions may cause fire, electrical shock, or other hazards.
15. **Safety check -** Safety checks should be performed upon completion of service or repairs to the unit to ensure proper operating condition.
16. **Installation -** Install in accordance with the manufacturer's instructions and in accordance with applicable local codes.
17. **Attachments, changes or modifications -** Only use attachments/accessories specified by the manufacturer. Any change or modification of the equipment, not expressly approved by Bosch, could void the warranty or, in the case of an authorization agreement, authority to operate the equipment.

1.2 Safety precautions

DANGER! High risk:
This symbol indicates an imminently hazardous situation such as “Dangerous Voltage” inside the product.
If not avoided, this will result in an electrical shock, serious bodily injury, or death.

WARNING! Medium risk:
Indicates a potentially hazardous situation.
If not avoided, this could result in serious bodily injury or death.

CAUTION! Medium risk:
Indicates a potentially hazardous situation.
If not avoided, this may result in minor or moderate injury.
Alerts the user to important instructions accompanying the unit.

CAUTION! Low risk: (without safety alert symbol)
Indicates a potentially hazardous situation.
if not avoided, this may result in property damage or risk of damage to the unit.

NOTICE!
This symbol indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

1.3 Important notices

Accessories - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury and/or serious damage to the unit. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer. When a cart is used, use caution and care when moving the cart/apparatus combination to avoid injury from tip-over. Quick stops, excessive force, or uneven surfaces may cause the cart/unit combination to overturn. Mount the unit per the manufacturer's instructions.

All-pole power switch - Incorporate an all-pole power switch, with a contact separation of at least 3 mm in each pole, into the electrical installation of the building.

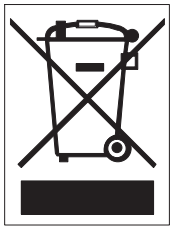
If it is needed to open the housing for servicing and/or other activities, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

Coax grounding:

- Ground the cable system if connecting an outside cable system to the unit.
- Connect outdoor equipment to the unit's inputs only after this unit has had its grounding plug connected to a grounded outlet or its ground terminal is properly connected to a ground source.
- Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding plug or grounding terminal.
- Follow proper safety precautions such as grounding for any outdoor device connected to this unit.

U.S.A. models only - *Section 810* of the *National Electrical Code, ANSI/NFPA No.70*, provides information regarding proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

NOTICE!
This device is intended for use in public areas only.
U.S. federal law strictly prohibits surreptitious recording of oral communications.



Disposal - Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per *European Directive 2002/96/EC*.

Environmental statement - Bosch has a strong commitment towards the environment. This unit has been designed to respect the environment as much as possible.

Fuse rating - For security protection of the device, the branch circuit protection must be secured with a maximum fuse rating of 16A. This must be in accordance with *NEC800 (CEC Section 60)*.

Grounding and polarization - This unit may be equipped with a polarized alternating current line plug (a plug with one blade wider than the other blade). This safety feature allows the plug to fit into the power outlet in only one way. If unable to insert the plug fully into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Alternately, this unit may be equipped with a 3-pole grounding plug (a plug with a third pin for earth grounding). This safety feature allows the plug to fit into a grounded power outlet only. If unable to insert the plug into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the grounding plug.

Moving - Disconnect the power before moving the unit. Move the unit with care. Excessive force or shock may damage the unit and the hard disk drives.

Outdoor signals - The installation for outdoor signals, especially regarding clearance from power and lightning conductors and transient protection, must be in accordance with *NEC725* and *NEC800 (CEC Rule 16-224* and *CEC Section 60)*.

Permanently connected equipment - Incorporate a readily accessible disconnect device in the building installation wiring.

Pluggable equipment - Install the socket outlet near the equipment so it is easily accessible.

Power disconnect - Units have power supplied whenever the power cord is inserted into the power source. The power cord is the main power disconnect for all units.

Power lines - Do not locate the camera near overhead power lines, power circuits, or electrical lights, nor where it may contact such power lines, circuits, or lights.

Rack-mount

– Ventilation - Do not place this unit in a built-in installation or rack without proper ventilation or adhering to the manufacturer's instructions. The equipment must not exceed its maximum operating temperature requirements.
– Mechanical loading - Properly mount the equipment in a rack to prevent a hazardous condition due to uneven mechanical loading.

SELV

– All the input/output ports are Safety Extra Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.
– Because the ISDN circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the Telephone Network Voltage (TNV) circuits.

Video loss - Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.

NOTICE!
This is a class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC & ICES INFORMATION (commercial applications)
(U.S.A. and Canadian Models Only)
This device complies with *part 15* of the *FCC Rules*. Operation is subject to the following conditions:

– this device may not cause harmful interference, and
– this device must accept any interference received, including interference that may cause undesired operation.

Note
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and ICES-003 of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his expense.
Intentional or unintentional modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such modifications could void the user's authority to operate the equipment. If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action.
The user may find the following booklet, prepared by the Federal Communications Commission, helpful: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

INFORMATIONS FCC ET ICES (commercial applications)
(modèles utilisés aux États-Unis et au Canada uniquement)
Ce produit est conforme aux normes FCC partie 15. la mise en service est soumises aux deux conditions suivantes:

– cet appareil ne peut pas provoquer d'interférence nuisible et
– cet appareil doit pouvoir tolérer toutes les interférences auxquelles il est soumit, y compris les interférences qui pourraient influer sur son bon fonctionnement.

AVERTISSEMENT: Suite à différents tests, cet appareil s’est révélé conforme aux exigences imposées aux appareils numériques de Classe A en vertu de la section 15 du règlement de la Commission fédérale des communications des États-Unis (FCC). Ces contraintes sont destinées à fournir une protection raisonnable contre les interférences nuisibles quand l'appareil est utilisé dans une installation commerciale. Cette appareil génère, utilise et émet de l'energie de fréquence radio, et peut, en cas d'installation ou d'utilisation non conforme aux instructions, générer des interférences nuisibles aux communications radio. L’utilisation de ce produit dans une zone résidentielle peut provoquer des interférences nuisibles. Le cas échéant, l’utilisateur devra remédier à ces interférences à ses propres frais.
Au besoin, l’utilisateur consultera son revendeur ou un technicien qualifié en radio/télévision, qui procédera à une opération corrective. La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s’avérer utile : « How to Identify and Resolve Radio-TV Interference Problems » (Comment identifier et résoudre les problèmes d’interférences de radio et de télévision). Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4.
AVERTISSEMENT: Ce produit est un appareil de Classe A. Son utilisation dans une zone résidentielle risque de provoquer des interférences. Le cas échéant, l’utilisateur devra prendre les mesures nécessaires pour y remédier.

Disclaimer

Underwriter Laboratories Inc. (“UL”) has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UP’s *Standard(s) for Safety for Information Technology Equipment, UL 60950-1*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.
UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING-RELATED FUNCTIONS OF THIS PRODUCT.

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NOTICE!

This user guide has been compiled with great care and the information it contains has been thoroughly verified. The text was complete and correct at the time of printing. The ongoing development of the products may mean that the content of the user guide can change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness or discrepancies between the user guide and the product described.

More information

For additional information, please contact the Bosch Security Systems location nearest you or visit our web site at www.boschsecuritysystems.com

1.4 Customer Support and Service

If this unit needs service, contact the nearest Bosch Security Systems Service Center for authorization to return and shipping instructions.

Service Centers

USA

Telephone: 800-366-2283 or 585-340-4162
Fax: 800-366-1329
Email: cctv.repair@us.bosch.com

Customer Service

Telephone: 800-289-0096
Fax: 585-223-9180
Email: security.sales@us.bosch.com

Technical Support

Telephone: 800-289-0096
Fax: 585-223-3508 or 717-735-6560
Email: technical.support@us.bosch.com

Repair Center

Telephone: 585-421-4220
Fax: 585-223-9180 or 717-735-6561
Email: security.repair@us.bosch.com

Canada

Telephone: 514-738-2434
Fax: 514-738-8480

Europe, Middle East & Asia Pacific Region

Telephone: 44 (0) 1495 274558
Fax: 44 (0) 1495 274280
Email: rmahelpdesk@solectron.com

More information

For additional information, please contact your Bosch Security Systems representative or visit our web site at www.boschsecurity.com

2 Unpacking

This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, notify the shipper immediately.
Verify that all the parts listed in the Parts List below are included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative.
The original packing carton is the safest container in which to transport the unit and must be used if returning the unit for service. Save it for possible future use.

2.1 Parts List

The following table lists the parts included:

Quantity	Part
1	UML-202-90 Color LCD Flat Panel Monitor
1	Installation manual
2	Power Cords, 3-wire with grounded plug 1.8 m (6 ft) long: one with a U.S plug type and one with a European Continental plug type
1	VGA to VGA (D-SUB) cable, 1.5 m (5 ft)
1	DVI-D to DVI-D cable, 1.5 m (5 ft)
1	Remote control with two (2) batteries
1	Audio cable PC-style

3 Exploded View

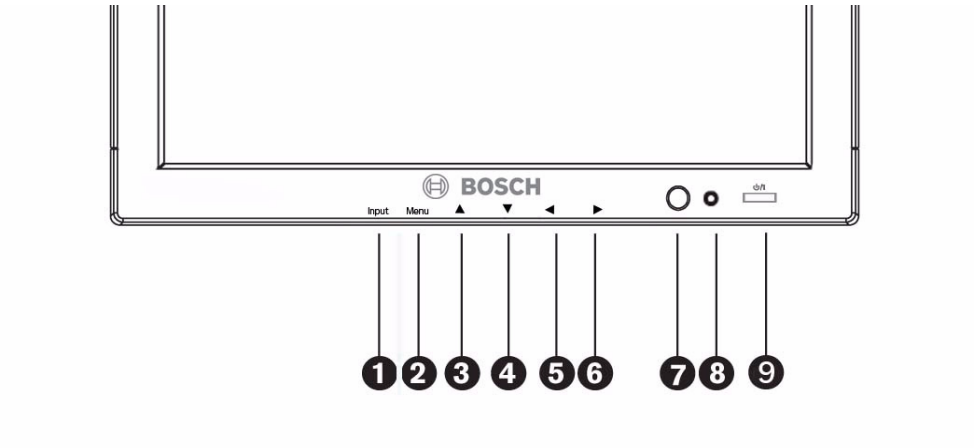


Fig. 3.1 Front Panel UML-202-90

Reference #	Button	Description	
1	Input Button	Selects the signal to be displayed	
2	Menu Button	Selects the on-screen display (OSD)	
3	▲	Adjusts the value when in the OSD	Scrolls up in the OSD
4	▼	Adjusts the value when in the OSD or auto adjusts when in PC mode	Scrolls down in the OSD
5	◀	Decreases the value when in the OSD	Scrolls left in the OSD
6	▶	Increases the value when in the OSD	Scrolls right in the OSD
7	IR Sensor	Remote control sensor	
8	LED Indicator	Power On (green) Power Off, Standby (red)	
9	Power Button	Display power (On/Off)	

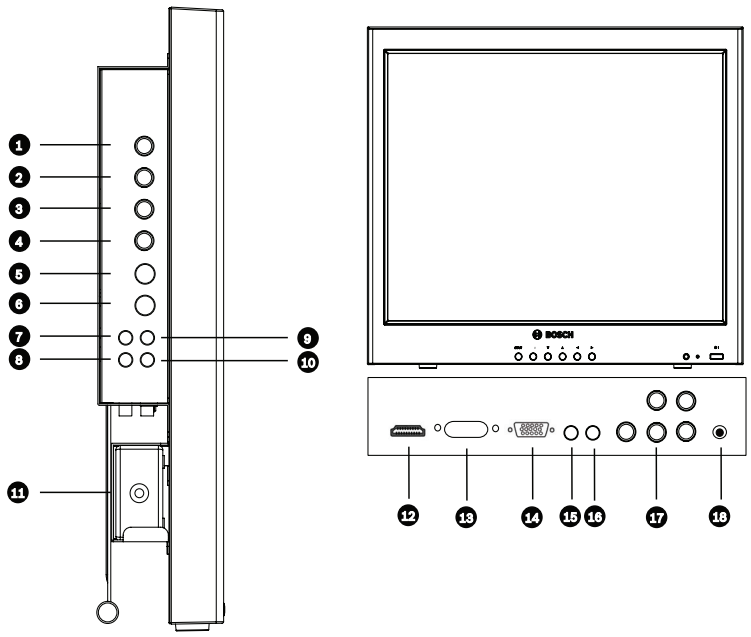


Fig. 3.2 Side and Bottom Panels UML-202-90

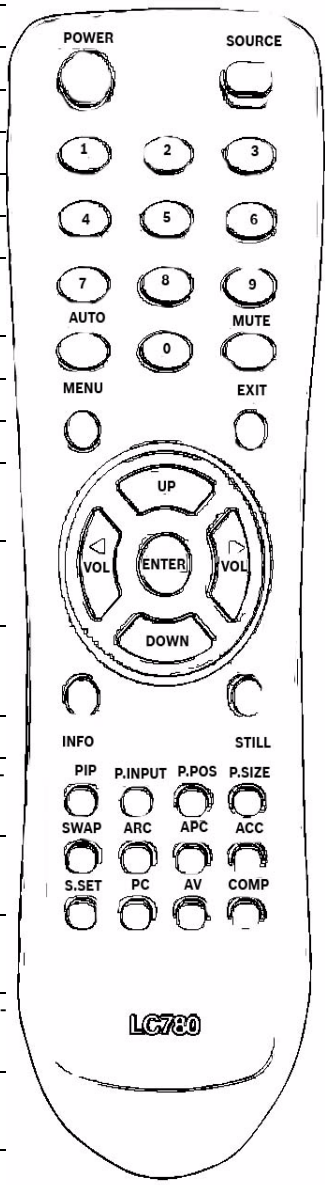
Side Panel	
Reference #	**Connector**
1	Video 1 (AV1) IN
2	Video 1 (AV1) OUT
3	Video 2 (AV2) IN
4	Video 2 (AV2) OUT
5	S-Video (Y/C) IN
6	S-Video (Y/C) OUT
7	Audio IN (AV1, S-Video)
8	Audio OUT (AV1, S-Video)
9	Audio IN (AV2)
10	Audio OUT (AV2)
11	12 V Adaptor

Bottom Panel	
Reference #	**Connector**
12	HDMI IN
13	DVI IN
14	D-SUB IN
15	PC Stereo IN
16	Audio OUT
17	Component Y, Pb, Pr and Sound L, R
18	DC 12 V IN

4 Remote Control

This section details the functions and the usage of the Bosch remote control.

Button	Function
POWER	Turns the power ON and OFF.
SOURCE	Selects the PC or Video source.
Numbers	Numerals 0-9.
AUTO	Auto adjusts to the graphics adaptor.
MUTE	Mutes the sound.
MENU	Displays the OSD. Pressing the MENU button returns you to the Main menu from anywhere in the OSD menus.
EXIT	Exits the OSD.
UP	Moves the cursor up in an OSD menu.
DOWN	Moves the cursor down in an OSD menu.
ENTER	Accepts your selection or displays the current mode when in the OSD menu.
← VOL	Moves the cursor left, decreases item values in an OSD menu, or decreases sound.
→ VOL	Moves the cursor right, increases item values in an OSD menu, or decreases sound.
PIP	Activates/deactivates Picture-In-Picture mode.
P. INPUT	Selects the PC or Video source for the PIP. Continuously press this button to change the selection.
P. POS	Moves the position of the sub picture for the PIP mode. Continuously press this button to change the selection.
P. SIZE	Changes the size of the sub and main picture for the PIP mode. Continuously press this button to change the selection.
SWAP	Alternates between the main and sub picture for the PIP mode. Continuously press this button to change the selection.
ARC (Aspect Ratio Control)	Selects the screen ratio when in Video mode. Continuously press this button to change the selection.
APC (Auto Picture Control)	Selects the picture mode. Continuously press this button to change the selection.
ACC (Auto Color Control)	Selects the color mode. Continuously press this button to change the selection.
S. SET	Selects the sound mode main input or sub input (only available when PIP is enabled).
PC	Selects the PC mode (HDMI, DVI, PC). Continuously press this button to change the selection.
AV	Selects the AV mode (AV1, AV2, S-Video). Continuously press this button to change the selection.
COMP	Selects the COMPONENT mode.



4.1 Remote Control Battery Installation

1. Turn the remote over (buttons facing down) and push down on the cover and slide it off.
2. Insert two (2) new AAA alkaline batteries, matching the batteries to the (+) and (-) marks inside the battery case.

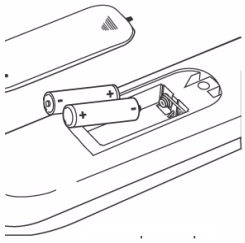


Fig. 4.1 Battery Installation

3. Slide the battery cover back into place.

NOTICE! Replace batteries when required or at least once a year. Dispose of used batteries properly.

5 Description

The UML-202-90 20-inch (51-cm) Color Panel Display Monitor displays PAL or NTSC standard color pictures in CCTV systems. The UML-202-90 monitor includes two (2) looping Composite Video BNC connector inputs, two (2) looping Audio input RCA, and two (2) looping Y/C (S-Video) input using a 4-pin mini-DIN. In addition, this model also includes an Analog VGA input using 15-pin D-sub to accommodate the increasing use of PCs and digital video devices in security applications, an HDMI (High Definition Multimedia Input), DVI, PC-RGB (VGA), RC Audio In and Out, and Component Video (Y/Pb/Pr) connectors.
Monitor control functions are accessed via the front panel push buttons and On-screen Display (OSD). See *Figure 3.1* on page 10 for front panel descriptions.

5.1 Features

This high-performance, 20-inch Color Panel Display Monitor with 1600 X 1200 pixels resolution has been designed to display Analog VGA and Composite Video signals.

- 90 to 256 VAC Power Supply
- NTSC/PAL Auto-Detect
- 1600 x 1200 High-Resolution Display
- VGA Input
- Composite Video Input
- Y/C Input (S-Video)
- On-screen Display (OSD) with Multiple Languages

5.2 Power

Model No.	Rated Voltage	Voltage Range	Power at Rated Voltage	Sync Format
UML-202-90	120/230 VAC 50/60 Hz	90 to 256 V	70 W (max)	NTSC/PAL

6 Installing the UML-202-90

This chapter outlines the procedures needed to install the UML-202-90 Series. A qualified service person should install the monitor and adhere to all local codes.
The UML-202-90 monitor is delivered with a 3-pole US-style power cord and a 3-pole Euro-style power cord. Use the US-style power cord where 120 VAC, 60 Hz power is available; and use the Euro-style power cord where 230 VAC, 50 Hz power is available. The monitor automatically adjusts to either power input voltage.

6.1 Ventilation

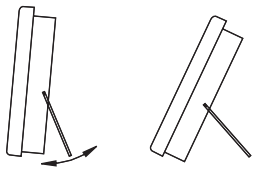
To prevent overheating, ensure that the ventilation openings on the rear of the monitor are not covered.

6.2 Mounting the UML-202-90

The UML-202-90 is designed to be used on a desktop or mounted to a wall or rack.

6.2.1 Desktop Installation

The viewing angle of the LCD can be adjusted to fit the most comfortable monitoring status.



Min Degree	Max Degree
25° 122 mm	50° 192 mm

NOTICE! For the best viewing quality and holding support, the suggested bracket angle is 25° to 50°.

6.2.2 Wall Mount Installation

The square mounting holes (100 mm (3.9 in.) centers) can be used for wall mount installation using the optional UMM-LW-20B fixed mount or the UMM-LW-30B swivel/tilt mount.

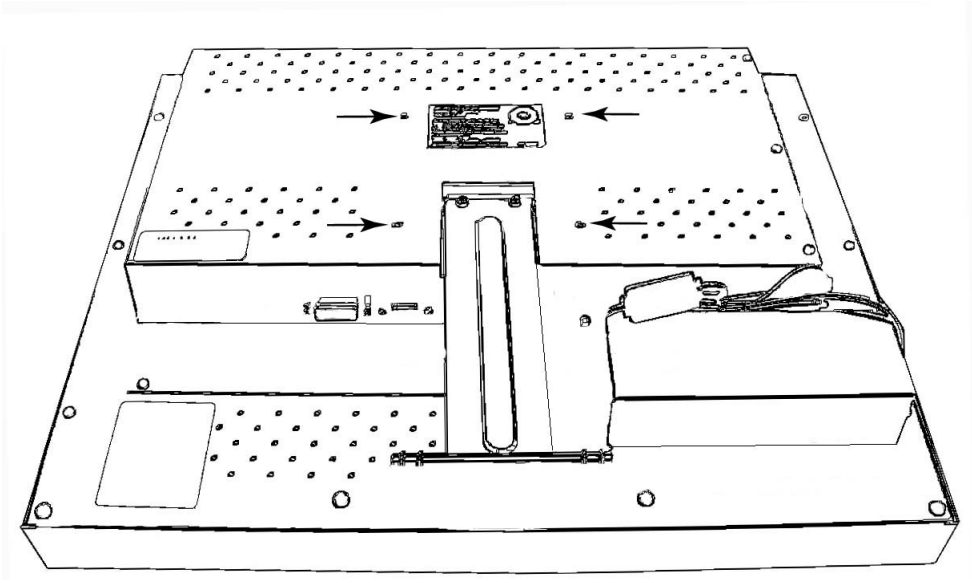


Fig. 6.1 Mounting the Device

6.3 Connecting the Composite Video Signal to the Monitor

There are two (2) BNC connectors located on the rear side panel of the monitor for composite video input and two (2) BNC connectors for composite video outputs (see *Figure 3.2* on page 11).

NOTE: All video inputs are passive loop-through. The impedance is automatically set to 75 ohm by the input of the signal on the input connector, while operating in a single connection mode (see *Figure 6.6* on page 19). If a cable is also connected to the output connector, the video signal can be passed on to another monitor connected to it via the passive loop-through function. Up to three (3) monitors may be connected in this manner (see *Figure 6.7* on page 19).

NOTICE! To select between AV1 and AV2, press Input (see *Figure 3.1* on page 10, Item 1) located on the front of the monitor.

6.4 Connecting the Y/C (S-Video) Signal to the Monitor

There is one (1) mini-DIN type connector for the S-Video (Y/C) input (see *Figure 6.2* on page 17) on the rear side panel.
NOTE: Both Y and C inputs are terminated with 75 ohm.

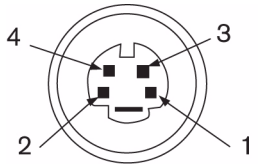


Fig. 6.2 Y/C Connection Pinout

Reference	Input
1	GND
2	GND
3	Y-signal IN or OUT
4	C-signal IN or OUT

6.5 Connecting Audio to the Monitor

There are two (2) sets of mono audio connectors for audio input.
– All audio inputs are active loop-through.
– Audio 1 is associated with Video 1 or Y/C; Audio 2 is associated with Video 2.

Reference	Audio 1	Audio 2
Video 1	X	
Video 2		X
S-video	X	

6.5.1 Connecting PC Audio

The rear bottom panel has PC stereo audio IN and audio OUT. Connect with 1/8 in. mini phono plug jack to Audio IN.

6.6 Connecting the PC Signal to the Monitor

There are three ways to connect the PC signal to the monitor.

6.6.1 HDMI

The monitor can be connected to the HDMI (High Definition Multimedia Input) by connecting a HDMI cable (not supplied).

Fig. 6.3 HDMI Input

6.6.2 DVI

The monitor can be connected by using the supplied DVI-D cable and connecting it to the digital DVI-D signal.

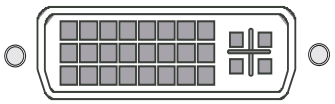


Fig. 6.4 DVI Input

6.6.3 VGA

The monitor can be connected by connecting the analog VGA signal by using the provided VGA cable (D-SUB to D-SUB).

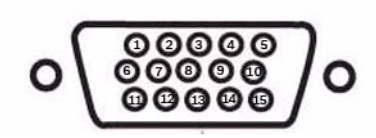


Fig. 6.5 VGA Input

Pin #	Description
1	Red Video
2	Green Video
3	Blue Video
4	Ground
5	Ground
6	Red Ground
7	Green Ground
8	Blue Ground
9	N/A
10	Signal Cable Detect
11	Ground
12	SDA (for DDC)
13	H-Sync or H+V Sync
14	V-Sync
15	SCL (for DDC)

6.7 Single / Multiple Monitor Configuration

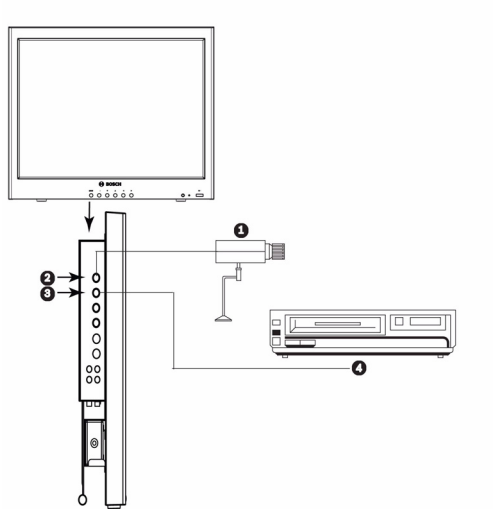


Fig. 6.6 Single Monitor Configuration

Reference #	Description
1	Video Camera
2	VIDEO 2 (AV2) IN
3	VIDEO 2 (AV2) OUT
4	VCR

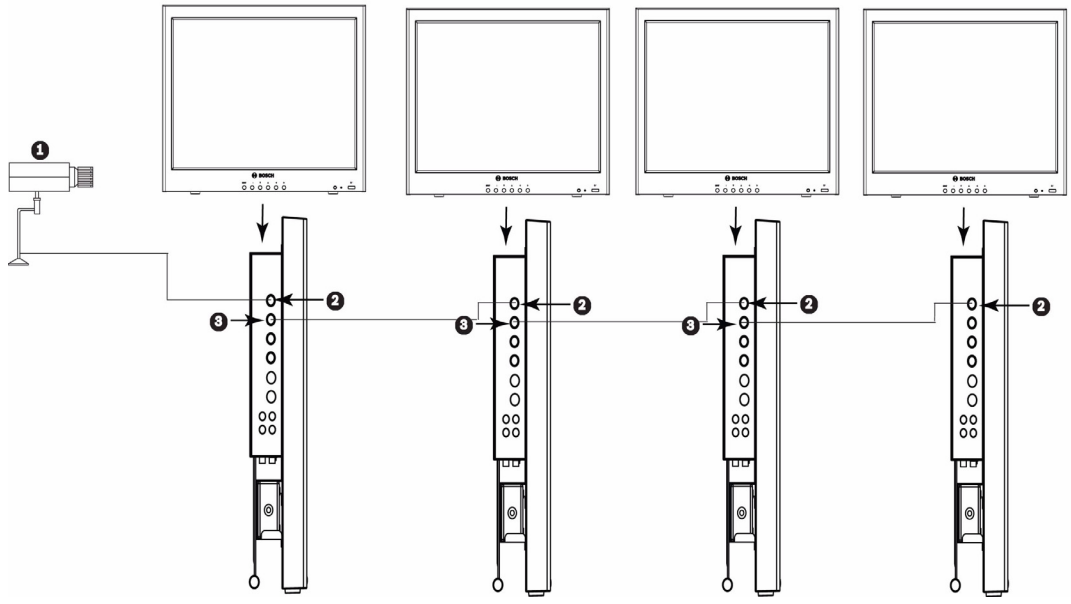


Fig. 6.7 Multiple Monitor Configuration

Reference #	Description
1	Video Camera
2	VIDEO 2 (AV2) IN
3	VIDEO 2 (AV2) OUT

7 Navigating the Monitor

7.1 Navigating the Front Panel

Use the front panel to make any necessary OSD adjustments to the UML-202-90. See the figure below for an explanation of the front panel.

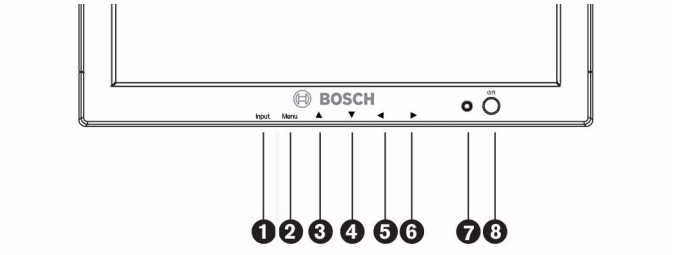


Fig. 7.1 Front Panel Buttons

Reference	Button	Description	
1	Input Button	Selects the signal to be displayed	
2	Menu Button	Selects the on-screen display (OSD)	
3	▲		Scrolls up in the OSD
4	▼	Performs an Autoset when connected to the VGA input, which automatically adjusts the display to match the graphics adapter.	Scrolls down in the OSD
5	◀	Decreases the value	Scrolls left in the OSD
6	▶	Increases the value	Scrolls right in the OSD
7	LED Indicator	Power On (green) Standby, Suspend, Active Off (flashing red) Unsupported mode (green) Power Off (red)	
8	Power Button	Display power (On/Off)	

7.2 Navigating the Monitor On-screen Display (OSD)

The UML-202-90 has two (2) modes, Video and PC. The UML-202-90 is programmed through the on-screen display (OSD) menus. Each OSD shows a list of parameters or submenus that the operator can select. To access the OSD menus, press the Menu button on the front panel or on the remote control. Use the front panel of the UML-202-90 or remote control to make any necessary adjustments to the OSD.

NOTICE! When you are navigating through the OSD menus, use the Input button to select a menu and use the Menu button to exit a menu.

To navigate the set up menus, follow the steps below:

1. Connect the CVBS or VGA cable.
2. If required, press the Input button until a signal is displayed. NOTE: Menus are not available without a signal applied.
3. Power on the unit by pressing the power button (see *Figure 7.1* on page 20).
4. Press the Menu button to activate the main menu selections (see *Figure 7.1* on page 20).
5. Press the ▲ and ▼ buttons to navigate the main menu bar.
6. Press the Input button to enter the selected main menu.
7. Press the ▲ and ▼ buttons to select a menu item.
8. Press the ◀ and ▶ button to toggle the OSD values.
9. Press the Menu button to exit the selected button and to return to the menu bar.
10. Press the Menu button again to exit the OSD menu bar.

7.3 On-screen Display Menus

There are four (4) on-screen menus that allow you to customize your settings. Press the Menu button to access the OSD menu.

Icon	Menu	Function
	Custom	Adjusts the Brightness, Contrast, Color, Tint, and the Sharpness level for video performance of the OSD.
	Picture / Sound	Adjusts the Picture Mode, Color Tone, Mute, Volume, Size, and the PC settings.
	PIP	Adjusts the Input Source, Size, Position, Swap, and the Sound Select settings.
	Set Up	Enables user to Reset the factory default settings and to adjust the Language, OSD Tone, Blue Screen, and the Key Lock settings.

7.4 Custom Menu

To access the Custom menu, press the Menu button on the front panel of the monitor. Next, press the right arrow and then press the up and down arrows to select a submenu. Press the left and right arrow buttons to increase or decrease the values. When finished, press the Menu button to save any changes, then press the Menu button again to exit the OSD.

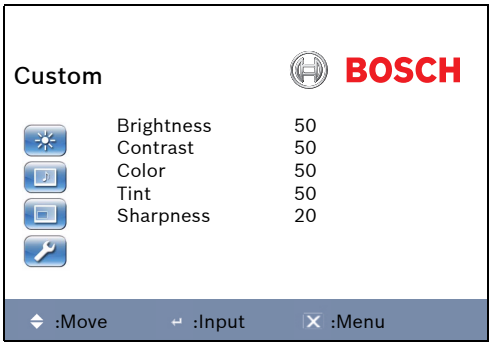


Fig. 7.2 Custom Menu (Video Mode)

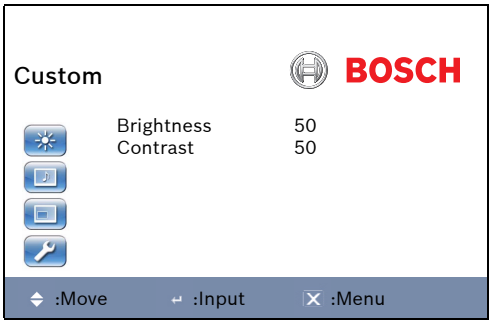


Fig. 7.3 Custom Menu (PC Mode)

Submenu	Definition
Brightness	Adjusts the brightness level for video performance (range 0-100).
Contrast	Adjusts the contrast level for video performance (range 0-100).
Color	Adjusts the overall intensity of the screen (range 0-100).
Tint	Adjusts the tint of the picture (range 0-100). NTSC only.
Sharpness	Adjusts the sharpness level for video performance (range 0-100).

7.5 Picture / Sound Menu

To access the Picture / Sound menu, press the Menu button on the front panel of the monitor, then press the left and right arrows to select the Picture / Sound icon. Press the up and down arrows to select the Picture / Sound submenu.

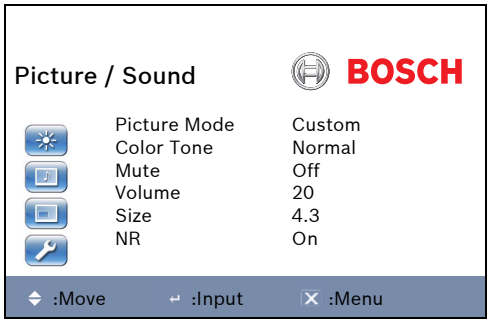


Fig. 7.4 Picture / Sound Menu (Video Mode)

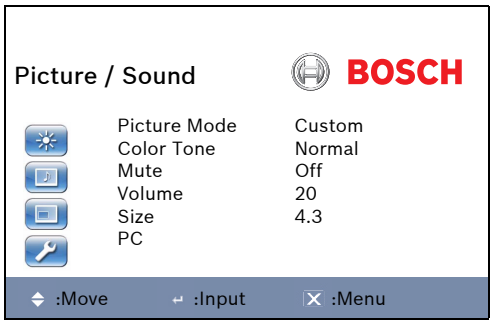


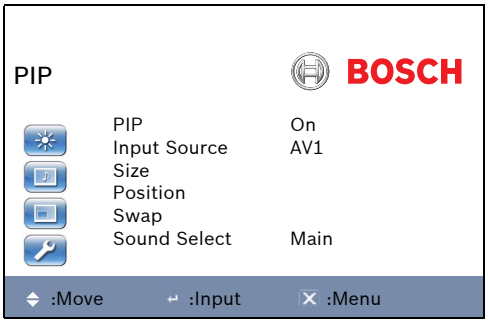
Fig. 7.5 Picture / Sound Menu (PC Mode)

Submenu	Definition
Picture Mode (Video Mode)	Selects the automatic picture control mode. Choices are: – Custom: User selected values of the Custom menu are applied. – Dynamic: Automatically adjusts the Brightness, Contrast, and Sharpness, maximizing the video quality in the picture. – Standard: Applies factory default values.
Picture Mode (PC Mode)	Selects the automatic picture control mode. Choices are: – Custom: User selected values of the Custom menu are applied. – High: Uses the following values: Brightness = 70, Contrast = 80 – Middle: Uses the following values Brightness = 60, Contrast = 70. – Low: Uses the following values Brightness = 50, Contrast = 60.
Color Tone	Selects the color temperature. Choices are: Cool 9300K, Normal 6500K, Warm 5000K.
Mute	Enables/disables audio. Choices are: On and Off.
Volume	Controls built-in speaker output volume (range 0-100).

Size (Video Mode)	Selects the Aspect Ratio Control mode. Choices are: 4:3, Panorama, Zoom1, Zoom2, Wide.
NR (Video Mode)	Turns Noise Reduction on or off. Turning this feature OFF reduces the video quality slightly, but improves the monitors response time to MOTION.
PC (PC Mode)	Selects between Auto or manual adjustment of the desktop screen. Auto Adjust: Auto synchronizes screen to graphics adaptor. Manual choices are: Phase (range 0-100), H-Position (range 0-100), V-Position (range 0-100), Frequency (range 0-100).

7.6 PIP Menu

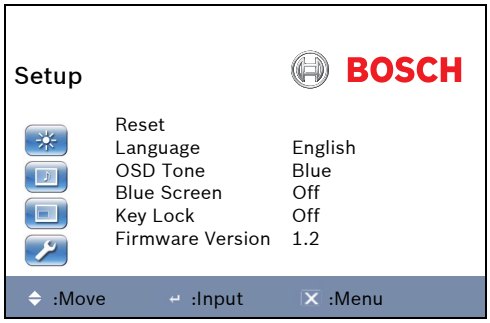
To access the PIP menu, press the Menu button on the front panel of the monitor, then press the left and right arrows to select the PIP icon. Press the up and down arrows to select the PIP submenu.



Submenu	Definition
PIP	On and Off
Input Source	AV1, AV2, S-video
Size	Enables 3 screen sizes: full screen side by side, 4:3 side by side, and 4:3 corner (177 mm [3.03 in.] diagonal).
Position	Enables 4 positions: bottom right, top right, bottom left, top left.
Swap	Alternates between the main and sub picture for the PIP mode. Continuously press to change selection.
Sound Select	Main and Sub (only available when PIP is enabled)

7.7 Setup Menu

To access the Setup menu, press the Menu button on the front panel of the monitor, then press the left and right arrows to select the Setup icon. Press the up and down arrows to select the Setup submenu.



Submenu	Definition
Reset	Restores default settings.
Language	Adjusts the language of the OSD. Choices are: English, French, German, Italian, Dutch, Spanish, and Portuguese.
OSD Tones	Selects the type of background for the OSD menu. Choices are: Transparency and Blue.
Blue Screen	Enables or disables video loss indication. Choices are: On: displays a blue background when video loss is detected. Off: displays a black backgound when video loss is detected.
Key Lock	Enables or disables the Key Lock function.
Firmware Version	Displays the release level of the monitor firmware.

NOTICE! When key lock is enabled through the front panel, use either the remote control or the front panel buttons to disable the key lock command. To disable the key lock feature using the front panel buttons, press and hold both the Input and the Menu buttons until the monitor displays the Key Unlocked message.

8 Power Management

This monitor features a power management system to “power down” upon receipt of the display power management signaling (DPMS) from a DPMS video card.
The DPMS-compliant video card performs this signaling system through not sending horizontal, vertical, or sync signal.
This monitor enters an appropriate mode through identifying each of the three modes of the signaling system.

8.1 Power Consumption

Mode	Power Consumption
ON	70 W
STANDBY	10 W
SUSPEND	10 W
ACTIVE OFF	10 W

8.2 LED Indicator

The power management feature of the monitor is comprised of these stages:

Mode	LED Color	Monitor Operation
ON	Green	Normal operation
STANDBY	Flashes Red	Screen blanks after idle time and some electronic circuits or all circuitry in the monitor shuts down.
SUSPEND		
ACTIVE OFF		
UNSUPPORTED MODE	Green	Normal operation but the screen displays an error message.
POWER OFF	Red	Not operational.

9 TroubleShooting Guide

Problem	Solution
No image is displayed on screen	1. Check that the power cord of the monitor is securely connected into the wall outlet or grounded extension cable or strip. 2. Power switch should be in the ON position and the LED lit. 3. Check that the Brightness and/or Contrast adjustments of the display have not been turned down to minimum levels.
“Going to Sleep” message is displayed	1. The signal cable should be completely connected to the video card/computer. 2. The video card should be completely seated in its slot and the computer switched ON.
Display image is not centered, is too small, or too large in the PC mode	Push the down key to activate the Autoset function. -or- Adjust the Clock and Phase in the OSD submenu.
Vertical or horizontal noise is present in the picture	Push the down key to activate the Autoset function (for VGA inputs only). -or- Adjust the Clock and Phase in the OSD submenu.
Incorrect colors	1. Press the Menu button on the front panel of the monitor, then press the right arrow to select the Color menu. Press the down arrow on the front panel and select Cool, Warm, or Normal. - or - 2. Press the Menu button on the front panel of the monitor, then press the right arrow to select the Utility menu. Press the down arrow on the front panel and select Recall to reset to the default settings.
The error message “Out of Range” is displayed	PC is operating with either a resolution or timing mode that is not supported by the UML-202-90. Change the PC timing mode to one of the valid combinations below: 640 x 480; 60/72/75 Hz 800 x 600; 60/72/75 Hz 1024 x 768; 60/70/75 Hz 1280 x 1024; 60/75 Hz 1600 x 1200; 60 Hz

10 Maintenance

To clean the LCD panel, wipe off water droplets or oil immediately with absorbent cotton or a soft lint-free cloth. Staining and discoloration may occur if left on the panel for long periods. If the surface (polarizer) of the LCD panel is dirty or stained, use absorbent cotton or a soft lint-free cloth to remove the residue as follows:

1. Turn off the computer or display.
2. Do not spray any liquid directly on the screen. Dampen a clean, soft, lint-free cloth with water only (using a paper towel or dirty cloth can scratch the screen).
3. Gently wipe the screen starting from the top of the screen to bottom wiping in a downward motion. Be careful not to press too hard to avoid damaging the screen.
4. To avoid streaking, wipe the screen again with another clean, dry, lint-free cloth.

NOTICE! If water does not work, use a mild cleaner labeled for use with LCD panels, available at office supply stores.

Do not use any of the following as a cleaning agent:

- Ketone type materials
- Ethyl alcohol
- Ethyl acid
- Tolulene
- Methyl chloride
- Ammonia

Use of these materials may permanently damage the polarizer due to a chemical reaction.

11 Technical Specifications

Electrical

Rated Voltage	110/230 VAC, 50/60 Hz
Voltage Range	90 to 264
Power at Rated Voltage	70 W
Sync Format	PAL/NTSC
LCD Panel	TFT LCD
Screen Size (H x V)	408 x 306 mm (16 x 12 in.)
Viewable Picture Area	20.1 in. (53 cm) measured diagonally
Pixel Pitch (H x V)	0.255 x 0.255 mm (0.01 x 0.01 in.)
Resolution	1600 x 1200 pixels, 500 TV lines typical
Aspect Ratio	4:3
Display Colors	8-bit interface; 16.7 million colors
Response Time	16 ms (typical)
Backlight	Six (6) cold cathode fluorescent tubes, rated life 50,000 hours, at 50% brightness

LCD Panel Optical Characteristics

Luminance	300 cd/m2, hard-coating (3H), non-glare treatment
Contrast Ratio (CR)	800:1
Viewing Angle	178° horizontal, 178° vertical @ CR >= 10
Sync Format	PAL/NTSC

Video Input

Composite Video (CVBS)	1.0 Vp-p (0.5-1.5 Vp-p), automatic switching from 75 Ohm unbalanced termination to Hi-Z with passive loop-through operation
Y/C (S-video)	0.7 Vp-p (Y-signal), 0.3 Vp-p (C-signal) 75 Ohm termination
Picture-in-Picture	Video 1, Video 2, S-video

HDMI/DVI/RGB Inputs

Analog RGB	0.7 Vp-p (0.5-1 Vrms)	
Picture-in-Picture	Video 1, Video 2, S-video	
DVI/RGB/HDMI Timing Modes	640 x 480, 60/72/75 Hz 800 x 600, 60/72/75 Hz 1024 x 768, 60/70/75 Hz 1280 x 1024, 60/75 Hz 1600 x 1200, 60 Hz	
Component Timing	**Resolution**	**V-freq (Hz)**
	640 x 480 (480i)	60
	720 x 576 (576i)	50
	640 x 480 (480P)	60
	720 x 576 (576P)	50
	1280 x 720 (720P)	50, 60
	1920 x 1080 (1080i)	50, 60
	1920 x 1080 (1080P)	50, 60
HDMI Timing	**Resolution**	**V-freq (Hz)**
	640 x 480 (480P)	60
	720 x 576 (576P)	50
	1280 x 720 (720P)	50, 60
	1920 x 1080 (1080i)	50, 60
	1920 x 1080 (1080P)	50, 60
Audio Input	1.0 V line level, mono	
Audio Output	Loop-through line level Speaker: two (2), 2 W	

Controls

Front Panel	Push-buttons
Input	Selects Video 1, Video 2, S-video, RGB, DVI, or HDMI input
Menu	Selects on-screen display (OSD) Up arrow, Menu select Down arrow, Menu select Left arrow, decrease Right arrow, increase
Power	On/Off
Front Panel Lockout	Multiple push-button combination

On-Screen Display

Video	Custom (Brightness, Contrast, Color, tint, Sharpness), Picture/Sound (Picture Mode, Color Tone, Mute, Volume, Size, Auto Adjust, H-position, V-position, Frequency), PIP (PIP, Input Source, Size, Position, Swap, Sound Select), Setup (Reset, Language, OSD Tone, Blue Screen, Key Lock, Version)
DVI/RGB	Custom (Brightness, Contrast, Sharpness), Picture/Sound (Picture Mode, Color Tone, Mute, Volume, PC, Auto Adjust, H-position, V-position, Frequency), PIP (PIP, Input Source, Size, Position, Swap, Sound Select), Setup (Reset, Language, OSD Tone, Blue Screen, Key Lock, Version)

Indicators

LED	Power On (green) Power Off (red) Standby\Sleep Mode (flashes red)
On-Screen	“No Signal” (Moving OSD)

Connectors

Video 1	Composite video: two (2) BNC (1 in, 1 out)
Video 2	Composite video: two (2) BNC (1 in, 1 out)
Y/C (S-Video)	Two (2) mini-DIN, 4-pin (1 in, 1 out)
Component	Y, Pb, Pr
Audio	PC: one (1) 1/8 in. mini phono plug Video: four (4) RCA (2 in, 2 out)
DVI-D HDMI RGB	One (1) DVI to DVI cable included One (1) cable not included One (1) RGB to RGB cable included
Power Cord	Two (2) 3-wire with a grounded plug, 1.8 m (6 ft) long, one (1) with a European/ Continental plug type and one (1) with a U.S. plug type

Mechanical

Cabinet Material	Front: ABS plastic Chassis: electrolytic galvanized iron
Finish	Charcoal black
Mount	Wall mounting compatible with standard bracket, 100 mm centers, M4 thread

Environmental

Operating Temp.	0°C to 40°C (32°F to 104°F)
Storage Temp.	-20°C to 60°C (-4°F to 140°F)
Humidity	10%-95%, non-condensing

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